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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,119	06/19/2003	John K. Shimmick	18158-011610	6002

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EXAMINER	
LYONS, MICHAEL A	
ART UNIT	**PAPER NUMBER**
2877	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/601,119	SHIMMICK, JOHN K.	
	Examiner	Art Unit	
	Michael A. Lyons	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *11-14 and 24-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,15-23 and 27-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *112403 and 012006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 11-14 and 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on July 11, 2005. As per the reply, the claims are hereby **cancelled**.

Claim Objections

Claim 7 objected to because of the following informalities: the claim ends in a semicolon, not a period. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 15-16, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Swanson et al (5,459,570).

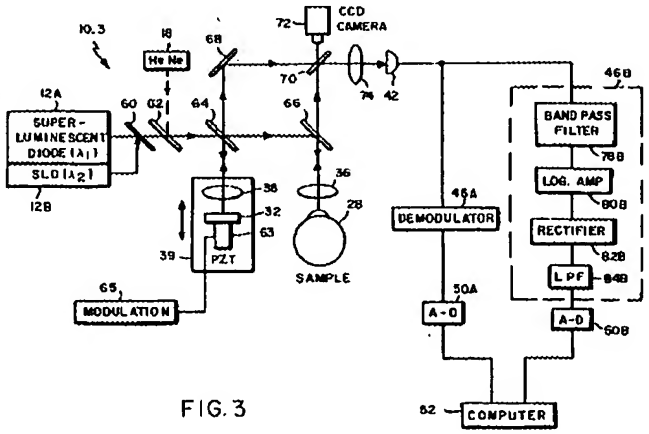

FIG. 3

Regarding claims 1, 15, and 30, Swanson (Fig. 3) discloses a system and corresponding method for measuring the thickness of a sample, this sample being a tissue (claim 40), comprising a light source 12A and 12B, each source having a different wavelength, the system not being limited to just two wavelengths as "a greater number of light sources . . . may be provided for appropriate applications" (Col. 10, lines 20-22), this light being directed along an optical path to sample 28 where it reflects off the sample, reference optics 39 that make the device an interferometer by creating a reference beam which is interfered with the reflected beam from the sample, the interfered light being detected at detector 42 and demodulated through demodulators 46A and 46B for each wavelength and generating an interference signal for each wavelength, and a processor 52 for determining the desired information about the desired measurements, such as thickness (Col. 1, line 11) by combining the interference signals from each demodulator.

As for claims 2 and 16, the measurement light beam can contain three (or more) wavelengths (Col. 10, lines 20-22), and the measurement and detection of the interference signal generated by the device and method occurs simultaneously, as there is no shutter for blocking off any undesired wavelengths from the system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-4 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson et al (5,459,570) in view of Sorin et al (5,610,716).

As for claims 3-4 and 17-18, Swanson's device discloses the use of demodulators 46A and 46B and computer 52 for demodulating and processing the interference signal. Swanson fails to disclose the determination of a Fourier series for the frequency of the signals and transforming the series to determine the spatial components that describe the position and intensity of the light reflected from the tissue, thereby determining thickness.

Sorin, however, discloses a thickness measuring device that uses "the slope of the Fourier transform of the output of the signal from the interferometer . . . to provide a determination of the thickness" of the object being measured (abstract), this transform of the interference light being a function of the frequency (claim 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the Fourier transform as per Sorin as the explicit thickness calculation method for the Swanson device, the motivation being that the well known Fourier transforms of interference signals provide an accurate determination of the thickness of the film in an easy to use manner.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson et al (5,459,570, hereinafter '570) in view of Swanson et al (5,321,501, hereinafter '501).

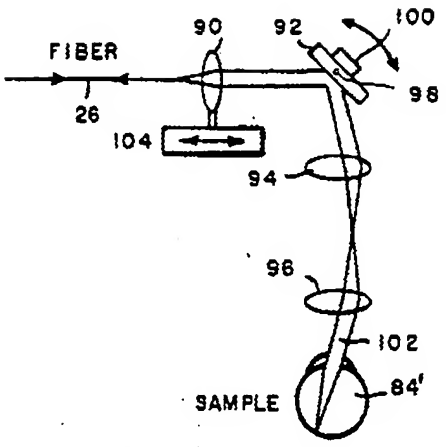

FIG.3A

As for claims 5 and 6, the '570 patent fails to disclose the scanning of the light beam across several regions of the sample in order to generate a tomographic image of the sample. The '501 patent, however, discloses (Fig. 3A) a rotating mirror 92 that scans the input light beam from the system along several locations of the sample (in this case, an eye) in order to generate an image of the eye.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a rotating mirror to the '570 patent in order to facilitate scanning and imaging of the sample as per the '501 patent, the motivation being that the scanning will allow for quicker imaging of multiple locations of the eye while maintaining functionality for thickness measurements.

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson et al (5,459,570, hereinafter '570) in view of Sorin et al (5,610,716) and in further view of Swanson et al (5,321,501, hereinafter '501).

As for claims 19 and 20, the combination of the '570 patent and Sorin fails to disclose the scanning of the light beam across several regions of the sample in order to generate a

tomographic image of the sample. The '501 patent, however, discloses (Fig. 3A) a rotating mirror 92 that scans the input light beam from the system along several locations of the sample (in this case, an eye) in order to generate an image of the eye.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a rotating mirror to the combined device of the '570 patent and Sorin in order to facilitate scanning and imaging of the sample as per the '501 patent, the motivation being that the scanning will allow for quicker imaging of multiple locations of the eye while maintaining functionality for thickness measurements.

Claims 7-8, 21-22, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson et al (5,459,570) in view of Detalle et al (6,873,419).

Regarding claims 7, 21, and 27, Swanson (Fig. 3) discloses a system and corresponding method for measuring the thickness of a sample, this sample being a tissue (claim 40), comprising a light source 12A and 12B, each source having a different wavelength, the system not being limited to just two wavelengths as "a greater number of light sources . . . may be provided for appropriate applications" (Col. 10, lines 20-22), this light being directed along an optical path to sample 28 where it reflects off the sample, reference optics 39 that make the device an interferometer by creating a reference beam which is interfered with the reflected beam from the sample, the interfered light being detected at detector 42 and demodulated through demodulators 46A and 46B for each wavelength and generating an interference signal for each wavelength, and a processor 52 for determining the desired information about the desired measurements, such as thickness (Col. 1, line 11) by combining the interference signals from each demodulator.

Swanson fails to disclose the use of an ablative light source; Swanson only discloses an aiming laser.

Detalle, however, discloses the use of an ablative light beam in preparing an object for thickness measurements and other three-dimensional mapping (see claim 1, section a).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an ablative laser in the device of Swanson as per Detalle, the motivation being that using an ablative laser will treat the sample of Swanson so that the surface is of a preferred shape, allowing for increased measurement accuracy.

As for claims 8 and 22, the measurement light beam can contain three (or more) wavelengths (Col. 10, lines 20-22), and the measurement and detection of the interference signal generated by the device and method occurs simultaneously, as there is no shutter for blocking off any undesired wavelengths from the system.

Claims 9-10, 23, and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson et al (5,321,501) in view of Detalle et al (6,873,419) and in further view of Sorin et al (5,610,716).

As for claims 9-10, 23, and 29, the combined device of Swanson and Detalle discloses the use of demodulators 46A and 46B and computer 52 (Swanson Fig. 3) for demodulating and processing the interference signal. Swanson and Detalle fail to disclose the determination of a Fourier series for the frequency of the signals and transforming the series to determine the spatial components that describe the position and intensity of the light reflected from the tissue, thereby determining thickness.

Sorin, however, discloses a thickness measuring device that uses "the slope of the Fourier transform of the output of the signal from the interferometer . . . to provide a determination of the thickness" of the object being measured (abstract), this transform of the interference light being a function of the frequency (claim 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the Fourier transform as per Sorin as the explicit thickness calculation method for the Swanson and Detalle device, the motivation being that the well known Fourier transforms of interference signals provide an accurate determination of the thickness of the film in an easy to use manner.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 6,558,094 to Yamazawa et al., US Pat. 6,815,228 to Usui et al., and US Pat. 6,882,431 to Teich et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL
September 27, 2005

HWA (ANDREW) LEE
PRIMARY EXAMINER